

What is claimed is:

1. A radiation shielding material comprising:

an effective amount of rubber; and

an effective amount of a radiation attenuating metal.

- 5           2. The radiation shielding material of claim 1, wherein said metal is selected from the group consisting of tungsten, bismuth, and stainless steel.

3. The radiation shielding material of claim 1, wherein said rubber includes thermosetting and TPO rubbers.

4. The radiation shielding material of claim 1, wherein said rubber is  
10       selected from the group consisting of polyisoprene, butadiene-styrene copolymers, acrylonitrilebutadiene copolymers, ethylenepropylene-diene rubbers, and silicone rubber.

5. The radiation shielding material of claim 1, further comprising a reinforcing filler and processing aids.

- 15           6. The radiation shielding material of claim 1, wherein the metal is tungsten or bismuth.

7. The radiation shielding material of claim 1, wherein the metal is tungsten.

8. The radiation shielding material of claim 1, wherein the shielding material comprises from about 65 percent by weight to about 95 percent by weight of the metal, based on the total weight of the material, and from about 5 to about 35 percent by weight of the rubber, based on the total weight of the material.

9. The radiation shielding material of claim 1, wherein the shielding material comprises from 65 percent by weight to 95 percent by weight of the metal, based on the total weight of the material, and from 5 to 35 percent by weight of the rubber, based on the total weight of the material.

10. The radiation shielding material of claim 1, further comprising heat and corrosion resistant metals.

11. A method for making a radiation shielding material comprising:

mixing effective amounts of a rubber, a radiation attenuating metal, and a curing agent to form a substantially homogeneous mixture;

processing the mixture into a desired form; and

curing the mixture to form the radiation shielding material.

12. The method of claim 11, wherein the radiation shielding material can be easily cut.

13. The method of claim 11, further comprising mixing a reinforcing material with the rubber, radiation attenuating metal and a curing agent to form the homogenous mixture, said reinforcing material being selected from the group consisting of cotton fibers, fiberglass fibers, aramid fibers, or Kevlar fibers.

5        14. The method of claim 11, wherein the radiation shielding material is in the form of a sheet having a thickness of from about 0.1 inch to about 1 inches.

15. The method of claim 11, wherein such an amount of the rubber and radiation attenuating metal are mixed that the radiation shielding material formed in the method comprises from about 5 to about 35 percent by weight of  
10 the silicone rubber and from about 65 to about 95 percent by weight of the radiation attenuating metal based on the total weight of the material.

16. The method of claim 11, wherein the radiation attenuating metal has a particle size ranging from about 5 to about 15 microns.

17. The method of claim 11, wherein said radiation attenuating metal is  
15 selected from the group consisting of tungsten, bismuth, and stainless steel.

18. The method of claim 11, wherein said rubber is selected from the group consisting of polyisoprene, butadiene-styrene copolymers, acrylonitrilebutadiene copolymers, ethylenepropylene-diene rubbers, and silicone rubber.

19. The method of claim 11, wherein the metal is tungsten or bismuth.

20. The method of claim 11, wherein the metal is tungsten.

21. A method for shielding a radiation emitting area comprising:

providing a radiation shielding material comprising a rubber and an  
5 effective amount of a metal having radiation attenuation characteristics; and

shielding the radiation emitting area with the radiation shielding material  
having an effective thickness sufficient for blocking a desired percentage of the  
radiation.

22. The method of claim 21, wherein said metal is selected from the group  
10 consisting of tungsten, bismuth, and stainless steel.

23. The method of claim 21, wherein said rubber is selected from the  
group consisting of polyisoprene, butadiene-styrene copolymers,  
acrylonitrilebutadiene copolymers, ethylenepropylene-diene rubbers, and  
silicone rubber.

15 24. The method of claim 21, wherein the radiation shielding material  
further comprises a reinforcing filler and processing aids.

25. The method of claim 21, wherein the metal is tungsten or bismuth.

26. The method of claim 21, wherein the metal is tungsten.

27. The method of claim 21, wherein the radiation shielding material comprises from about 65 percent by weight to about 95 percent by weight of the metal, based on the total weight of the radiation shielding material, and from about 5 to about 35 percent by weight of the rubber based on the total weight of the radiation shielding material.

28. The method of claim 21, wherein the radiation shielding material comprises from 65 percent by weight to 95 percent by weight of the metal, based on the total weight of the radiation shielding material, and from 5 to 35 percent by weight of the rubber based on the total weight of the radiation shielding material.

29. A radiation shielding material comprising:

an effective amount of an elastomer; and

an effective amount of a radiation attenuating metal.

30. The radiation shielding material of claim 29, wherein said metal is selected from the group consisting of tungsten, bismuth, and stainless steel.

31. The radiation shielding material of claim 29, wherein said elastomer is a thermosetting high polymer selected from the group consisting of:

styrene-butadiene copolymer, polychloroprene, nitrile rubber, butyl rubber, polysulfide rubber, cis-1, 4, polyisoprene, ethylenepropylene diene terpolymer rubber, silicone rubber, and polyurethane rubber.

32. The radiation shielding material of claim 29, wherein said elastomer is  
5 a TPO rubber.

33. The radiation shielding material of claim 29, wherein said metal is selected from the group consisting of tungsten, bismuth, and stainless steel.

34. The radiation shielding material of claim 29, further comprising a reinforcing filler and processing aids.

10 35. The radiation shielding material of claim 29, wherein the metal is tungsten or bismuth.

36. The radiation shielding material of claim 29, wherein the metal is tungsten.

37. The radiation shielding material of claim 29, wherein the shielding  
15 material comprises from about 65 percent by weight to about 95 percent by weight of the metal, based on the total weight of the material, and from about 5 to about 35 percent by weight of the rubber, based on the total weight of the material.

38. The radiation shielding material of claim 29, wherein the shielding material comprises from 65 percent by weight to 95 percent by weight of the metal, based on the total weight of the material, and from 5 to 35 percent by weight of the rubber, based on the total weight of the material.

5        39. The radiation shielding material of claim 29, further comprising heat and corrosion resistant metals.